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FOUNDED BY WILLIAM HUNTING, F.R.C.V.S.

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STATE AID FOR VETERINARY SURGEONS.

On another page we reprint a report of some important utterances by Mr. Runciman upon veterinary education. They are full of hope for our profession. Mr. Runciman fully recognised the need for the financial support of veterinary education by the State, and he foreshadowed the speedy advancement of a scheme for that purpose. Thus far, his words were quite clear and definite—naturally, as the matter is still in the inception, he did not enter into details. So far as it goes, the speech appears to be the most encouraging one to veterinary surgeons that has yet emanated from a Minister of State. The British Government has been a long time in recognising the just claims of the veterinary profession, but it is evident that recognition is coming at last.

THE RESEARCH DEFENCE SOCIETY.

This Society is now commencing the sixth year of its existence, and the results of its work are well summarised by the following extract from a letter which its executive officers have sent to the public Press.

"We are of opinion that our Society has helped to bring about a much better understanding of experiments on animals in this country. There is less of ignorance, prejudice, and ill-will, less readiness to accept without inquiry the charges made against this method of research, less doubt of its great value in physiology and pathology.

The public is beginning to see that experiments on animals are useful in the maintenance of national health and efficiency, in the protection of men on foreign service, in the safeguarding of workers at dangerous trades, and in the immunising of live stock against infectious disease."

All this is true; and veterinary surgeons as medical men owe a debt to the Society. Its work is largely that of a popular educator, spreading abroad the truth regarding animal experimentation as applied to medical science in its widest aspect. In no branch of medicine has animal experimentation proved more valuable than in the veterinary; and no branch would suffer more by its discontinuance. The Society that has done so much to render its position impregnable should be able to count upon veterinary support. Curiously enough, the medical profession as a whole has never supported the Society very warmly, and the veterinary profession has scarcely noticed it. Both professions should join in supporting, for its work is now bearing visible fruit.

ENORMOUS MYXO-SARCOMA OF THE OVARY IN A BITCH.

Hebrant and Antoine, of the Brussels Veterinary School, record this case of a small fox-terrier bitch, about eight years old. She appeared in very good health, but her abdomen was abnormally developed, almost trailing upon the ground. The history was that this swelling had appeared gradually, and it was certain that the animal could not be pregnant.

At first sight the appearance indicated ascites. The abdomen was distended at its most dependent part, and the flanks were hollow; while palpation and succussion gave a very distinct impression of "surging." Further examination, however, did not support this diagnosis. No abnormality could be detected in the organs usually concerned in the causation of ascites. The heart was beating normally, and auscultation of it indicated that its function was very good. The kidneys did not seem to be involved, for a complete analysis of the urine showed nothing abnormal. The liver, although it was impossible to examine it closely on account of the abdominal tension, did not seem to be acting abnormally. Finally the abdomen was repeatedly punctured at different places, first with the needle of a Pravaz syringe and then with a trocar, but not the least amount of liquid could be obtained.

Suspecting an ovarian cyst, the authors decided upon an exploratory laparotomy, and the abdomen was opened along the linea alba, under anæsthesia and aseptic precautions.

No liquid escaped when the abdomen was opened, but a fluctuating organ, slightly bluish in colour, and in its external aspect exactly resembling that of an uterus filled with pus, appeared in the wound. The organ was so voluminous that the abdominal incision had to be twice enlarged to extract it. When extracted, it proved to be not a uterine horn but an ovary the size of a man's head, and of soft consistence. The ovarian pedicle was then ligatured, the organ was removed, and the abdominal cavity was closed. The operation was carried out entirely without hæmorrhage.

The diseased organ weighed 3¾ kilogrammes (= about 8¼ lbs.) When incised, it appeared as a gelatinous mass formed of meshes of connective tissue containing a mucoid substance, and here and there showing centres of tissue the colour of calves' flesh. A myxoma with sarcomatous centres was diagnosed, and numerous microscopical examinations proved this to be correct. The condensed portions showed the structure of a spindle-celled sarcoma, and elsewhere the tissue was that of a myxoma of very loose texture.

UMI

The post-operative progress was perfect, and the last stitches were removed on the eighth day. The bitch did well subsequently, and was well advanced in pregnancy less than four months after the operation—(*Annales de Méd. Vét.*)

Perhydrit, a Stable Preparation of Hydrogen Peroxide.

Dr. J. Schumacher calls attention (*Deutsche Mediz. Woch.*) to this product. Merck's "perhydrol" is a chemically pure and acid-free preparation of hydrogen peroxide. Perhydrit is a more easily manageable and more stable form of perhydrol. It is a stable combination of hydrogen peroxide with urea, and is prepared from perhydrol. It is supplied in solid form in bottles of 20 and 50 grammes, and also as one-gramme perhydrit tablets in quantities of 10, 25, and 50. As regards the effects of the hydrogen peroxide as a disinfecting agent and in the cleansing of wounds, the properties of the new preparation are not inferior to those of perhydrol.—*Berliner Tier. Woch.*

W.R. C.

A TWIN FŒTUS.

On the evening of January 14th I was called to a three-year-old heifer in parturition. From appearances observed, she had been in labour for hours and she was in a state of exhaustion.

On examination I found that it was a breach presentation of a large calf in a very small pelvic ring. On further exploration I was very surprised to find a number of feet—six or seven—which on examination were found to include both fore and hind limbs.

I drew out the first pair of hind legs, and removed part of the fœtus at the loins: and did the same with the other hind limbs, cutting across the loins. As I had previously secured some fore legs, I tried to turn what was left of the fœtus and secure the head—the poll only of which could be reached.

As I saw it was a hopeless case—the heifer being exhausted and the pelvis too small to admit of a moderately sized calf being delivered—I had her slaughtered, and on post-mortem I found the bodies of two calves joined together at the side of the sternum. Their fore legs were round one anothers necks in a sort of embrace, with the feet extending backwards. The union between the two bodies seemed to be made up of cartilage and fibrous tissue; but as it was freezing at the time, and I was stripped in a draughty shed, I did not stay to examine very minutely. I enclose a photograph; you will see that the hind quarters are missing.

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Kidderminster.

VETERINARY MEDICAL ASSOCIATION OF IRELAND.

[National V.M.A.—Irish Branch].

SARCOPTIC MANGE IN THE DOG.*

By Prof. Craig, M.A., M.R.C.V.S., Royal Vet. Coll., Dublin

Mr. President and Gentlemen,—When I promised to read at this meeting a paper on "Sarcoptic mange in the dog," I intended to show specimens of the parasites under the microscope. It was suggested that the paper would be more interesting to you, if, in addition to this I gave a lantern demonstration, not only of the mange parasites of the dog, but also of those in the horse and sheep. Accordingly with the generous co-operation of Prof. Mettam and Mr. Haines, to whom I am indebted for much of the work entailed, I had micro-photographs made of specimens of my own preparations, and the lantern slides which I am about to show you are prepared from them. The parasites of which the photographs were taken were grown on some of the animals in this country. I have placed a series of some twenty slides under the microscopes upstairs, showing various mange parasites, for your inspection afterwards.

In dealing with the subject of mange, I shall refer in detail to sarcoptic mange in the dog, and then pass under review the acari causing mange or scabies as it affects the other two species of domestic animals.

Sarcoptic Mange in the Dog.

There are three forms of mange in the dog—Sarcoptic mange, Follicular mange, and Symbiotic mange affecting the ears causing acariasis or parasitic canker. Of these, indeed of all skin diseases of the dog, the most common is sarcoptic mange, That conclusion is the more forced upon one when a systematic examination is made of the scrapings of the lesions in all skin cases observed in practice. On many occasions difficulties may arise in discovering the cause of the disease, but with practice the parasite in one or other of its stages may easily be found as a rule, in sarcoptic mange, when one becomes familiar with the lesions in which the acari are likely to be present. That is my own experience. At first I had the greatest possible difficulty in demonstrating the parasites in sarcoptic mange, but now I am usually able to do so without much loss of time.

* Read at the meeting held on Dec. 10th.

Occurrence. Sarcoptic mange affects dogs of all breeds and of various ages. I have seen a great many cases lately in young dogs. One of the last cases I had appeared in a Pomeranian puppy only four weeks old. At the time the puppy was brought to my notice the disease had extended nearly all over the body, pointing to infection shortly after birth. No information could be obtained as to the source of infection; the owner told me that the dam was apparently quite healthy.

Etiology. The cause of the disease was first demonstrated by Grohier in 1814, and has since been described by Gurlt and Hertwig, Gerlach, Fürstenburg, Robin, Delafond, Mégnin, and others. It is a variety of the Sarcoptes Scabiei.

The Sarcoptes Scabiei belong to the Psoric Sarcoptidæ of the order Acarina and the class Arachnida. It is white or grey in colour and almost microscopic in size. The body is oval, convex on its dorsal surface and flat below. (Photos 1 and 2). It is covered with a fine chitinous envelope which is marked by fine sinuous streaks and presents bristles and spinules at various parts. In front, the mouth parts (maxillæ, palps, mandibles) form a stout conical rostrum which is flanked on either side by a thin expansion, the cheek, giving it a somewhat horseshoe-like appearance. The limbs are very stout and short and number four pairs in the adult, two pairs being attached to the body at the side of the rostrum and two pairs under the posterior portion of the body. The two posterior pairs are so completely covered that they cannot be seen when the sarcopt is viewed from the dorsal surface. Their presence then is only indicated by the long bristles which extend beyond the margin of the body from the extremities of the limbs. On the dorsal surface there are two long spinules behind the rostrum, three strong spinules in a triangle behind the second pair of legs on each side, seven spinules disposed in two rows on each side of the anus, and four hairs projecting backwards from the posterior margin of the body. The anus is terminal. Some of the limbs end in ambulacral suckers. The sucker is a slight membranous expansion, tulip shaped, attached to the end of the limb by a long thin stalk. The adult female is provided with suckers on the first two pairs of limbs, the adult male on the first two and fourth pairs. The other limbs end in long bristles. The adult female of the Sarcoptes scabiei v. canis is about ·35 m.m. long and ·26 mm. broad, the adult male is ·2 m.m. long and ·15 mm. broad. According to Mégnin the varieties of sarcoptes may be distinguished by their size, but the specimens which I have measured in the horse and dog correspond very closely.

Sarcoptes Notoedres. In three cases of mange which I examined in the dog this year, the sarcoptes present was the *Sarcoptes notoedres* (*or Sarcoptes minor*) *of the Subgenus notoedres*, varieties of which commonly cause sarcoptic mange in the cat and rabbit. This parasite is easily recognised among the sarcoptes by the following features. It is much smaller than the ordinary sarcoptes, its body is nearly spherical, the streaks on the upper surface of the envelope form concentric rings, the anus lies on the dorsal surface, and on each side of it there are six instead of seven spinules. (Photos 2, 3, 4, and 5). The average size of the specimens which I have examined are for the female ·21 mm. long and ·15 mm. broad; for the male ·14 mm. long and ·1 mm. broad. The eggs are ·1 mm. long and 0·7 mm. broad. In the first case the dog was an aged mongrel and the lesions were confined to one side of the face. The hair was removed over a considerable area, the epidermis was greatly thickened and presented an appearance similar to the surface of the dog's pad. The excess of epithelium could be easily scraped off. Numerous parasites in various stages of their development were found in the lesions. The eggs were packed together in what appeared to be nearly straight galleries, almost vertical to the surface of the skin.

The second case was a black and tan terrier about two years old in good condition. Hair was removed in patches from various parts of the head, around the eye, face, forehead, and almost entirely from the external ear. The skin over these areas was slightly thickened and wrinkled. Epidermal thickening was especially marked at the edge of the external ear. There were no other lesions. In scrapings from the edge of the ear female parasites and their eggs were extremely numerous. No evidence could be obtained in either case of the source of infection; possibly it was a mangy cat.

Third case of Sarcoptic mange in the dog due to the Sarcoptes Notoedres. Since writing this paper I have observed a third case of sarcoptic mange in the dog due to the Sarcoptes notoedres. The affected animal was an Irish terrier dog, two years old, in fair condition. It had only recently recovered from distemper. For about a week it had been noticed scratching its head, ears and elbows very much. Over these areas the skin was becoming very thin and a few ulcers had resulted from the scratching. A little epidermal thickening had formed on the skin at the side of the outer canthus of the right eye. This was scraped off and examined. It contained numerous specimens of the Sarcoptes notoedres, chiefly females and their eggs. The dog was said to have been in the habit of playing up to two or three weeks previously with a cat which had some affection of the skin of the head, probably sarcoptic mange.

Development of the Sarcoptes. The ovigerous female by means of its strong rostrum burrows into the epidermis and forms a gallery which may be straight or curved. This gallery it may make in as short a time as 24 hours. In places where the skin is thin and unpigmented the entrance to the gallery appears as a dark spot on a slight elevation. In the gallery the parasite soon begins to lay its eggs.

The Egg is ovoid in shape and about .15 mm. long and .08 mm. broad. Its contents are granular and it is covered by a thin homogeneous tough envelope. The number of eggs laid vary from 19 to 40, 15 probably being an average number. (Photo 6). I have counted as many as 50 eggs in one gallery on several occasions. Frequently only five or six eggs may be found in the neighbourhood of an ovigerous female. In the egg sometimes the larva may be noted in various stages of its development. (Photo 7). Before hatching out it lies in the egg with the bristles of the posterior limbs curved round the posterior part of the body. The larva hatches out in from three to eight days and leaves the gallery. Mégnin states that under most favourable conditions this may take place in 24 to 48 hours. The shell of the egg from which the larva escapes is split vertically at one end and has the form of an opened oyster shell; it is fairly characteristic.

The Larva is very small. It is provided with three pairs of legs, the two anterior pairs carrying suckers, the posterior pair bristles. It becomes quiescent and moults on two or three occasions to allow of its increase in size. (Photo 8 and 9). On the last occasion it becomes changed in a nymph.

The Nymph is much smaller than the adult, it is provided four pair of legs similar to those of the female, but the sexual organs are not developed. (Photo 10). It soon moults and is converted into the

Adult, Male or Female. The adult males are few in number and are much smaller than the females. The females when first formed are said to be pubescent. After coupling with the males, they moult and become changed into the ovigerous females which are provided with a vulva behind the anterior limbs on the ventral aspect. In each female as a rule only one egg may be seen. These changes occupy a period of two or

three weeks. Gerlach regards the average time for development as 15 days and the average number of progeny as 15 individuals, five males and ten females. He therefore estimates that from one ovigerous female 1½ millions may be produced in 90 days, thus indicating the enormous increase in the number of parasites and consequent development of mange that may occur within a very short period.

Resistance of the Sarcoptes. It is of great practical importance to know the longevity of the parasite removed from its host. How long will the sarcoptes live when removed from the skin? A few observations have been made to elucidate this question. According to Gerlach the sarcoptes of the horse die in a few days in dry air, but live for about a fortnight if kept moist. In specimens from the dog which I have kept on several occasions the adult acari and their eggs begin to break up after five days although kept warm and fairly moist. It is quite possible that in certain circumstances the sarcoptes may live in infected kennels or stables longer than these observations would indicate, but probably not longer than three or four weeks. As for the action of various agents on the acari, observations have been made under the microscope to note when the acari become quiescent after the agents had been applied, and their power of infectivity has also occasionally been tried. The parasites are quickly destroyed by exposure to a temperature near boiling point, by 10 per cent. creosote, carbolic acid, oil of tar, Peruvian balsam, bi-sulphide of carbon, creolin, tincture of iodine, petrol, oil of turpentine, potassium sulphide, 10 per cent. caustic potash and soft soap. The efficiency of these drugs in practice as parasiticides depends on their power of penetration, and their suitability is related to their toxicity and other circumstances.

Transmission. Sarcoptic mange is chiefly transferred by direct contact with affected animals, and this is the more likely if the disease is advanced. Dogs may also, but less commonly contract the disease from infected litter, by introduction to infected kennels, from attendants, by clothing and brushes. Animals which are frequently groomed and washed are less liable to become affected.

Method of Action of the Parasites. The sarcoptes produce their symptoms by irritation of the skin through biting, burrowing into the epidermis, but chiefly through the excretion of some irritating substance. This latter method of action has been well shown by an experiment of Gerlach. With a very fine needle he traced a groove in the epidermis and then moistening the point of the instrument with fluid from a crushed parasite re-introduced it into the groove. When the dermis was reached there was instantaneous pain, succeeded by the appearance of a papule and vesicle with pruritus.

Period of Incubation. The interval between infection and the appearance of noticeable symptoms varies with the number of acari which find their way on the body of the host, and also upon their vigour. In moderate infection the condition is not noticed for two or three weeks.

Symptoms. One of the first symptoms noticed is pruritus, the dog frequently scratches itself with the hind or even the fore limbs, rubs its body against neighbouring objects and bites itself. It presses very firmly against the hand or brush which is applied over its skin and when the skin is scraped, the dog makes vigorous scratching movements with its hind limbs. The intensity of the pruritus varies with individuals, is greater in thin-skinned animals, but not invariably so, is not so marked in puppies as in older animals. It may depend on two factors, the irritability of the skin and the potency of the excretion of the sarcoptes. It does not appear to be related so much to the number of parasites; in some cases I have noted the parasites were easily found, although the irritation was not very great. The pruritus is markedly increased when the dog becomes heated. This is due to the increased activity of the sarcoptes. (Photo 11.) The first part of the skin usually invaded is the head. The lesions there appear around the eyes, on the face and the outer side of the ears. They extend from the head into the intermaxillary space and to the neck. By scratching and rubbing, the parasites are transferred to the hind and fore limbs, and also to the under aspect of the thorax and abdomen, and lesions appear in these situations. On the limbs the lesions are most marked at the back of the elbow and above the hock. In severe and old-standing cases the disease involves the back and ultimately the whole body. In the early stages the epidermis over small areas becomes roughened, thickened, lumpy and scaly and the hair is cast off. The patches are irregular and increase in size at the edges. Little nodular thickenings, about the size of a pin's head or more, may sometimes be seen and felt. Where the skin is unpigmented, it is slightly reddened and a little dark spot may be seen on the centre of each nodule. This is most commonly noticed on the abdomen and side of the chest in thin-skinned dogs. The nodules are chiefly of epidermal formation, and indicate the point of burrowing of the ovigerous female sarcoptes. The parasite may be found if a deep scraping be taken over these spots. Occasionally small pustules about the size of millet seeds or larger, develop especially on the abdomen, as the result of the biting or piercing of the skin by the parasites, but I have never been able to discover a sarcopt in the pustules. Later the skin became very scaly, and large thin grey epidermal flakes are cast off or remain partly adherent to the neighbouring hairs. In cases where the skin around the eyes is involved and becomes denuded of hair, the dog presents a lemur-like cast of features. As a result of the thickening of the skin in that region, the eyelids may be slightly inturned and a conjunctivitis with a purulent discharge sets in. The thickening of the epidermis is usual greatest at the points where the dog cannot scratch or rub properly, *e.g.* the forehead, the tips of the ears, and these are the places from which scrapings should be taken for the purpose of examination. On account of the scratching, some areas of the skin such as at the side of the head, behind the elbows, and under the abdomen and chest, become reddened, moist and ulcerated. These ulcers may bleed and afterwards become covered with black scabs. In some cases there is a peculiar odour of the skin, almost like that of urine. As a result of the restlessness produced by the parasite and its excretion, the animal soon loses condition and may even become emaciated and very weak. The skin becomes greatly thickened and wrinkled. In neglected cases the dog may die from exhaustion after some months.

The progress of the disease is retarded by good grooming, frequent washing, and a generous diet, but is hastened by debility, poor condition, and bad hygiene.

The diagnosis is rendered probable by the appearance of the symptoms above described, especially by the pruritus and the situations of the lesions, but it is only absolutely certain when the parasite is discovered. In most skin diseases nowadays I am never satisfied with my diagnosis until I have made a microscopic examination of scrapings of the skin. The method I adopt is as follows: I note the parts of the skin where the epidermis is thickened and rough, almost wartlike. From these parts I scrape off the epidermis until the corium is exposed and the surface becomes moist or bleeds. It is as a rule of no service to take scrapings from the skin which is congested but not thickened either at the edge of the lesions or elsewhere, or to

examine the scales detached from the skin but adherent to the hairs, or the scabs of blood which have formed over the ulcers, the result of scratching. I then mix the scrapings with a 10% watery solution of caustic potash or soda on the surface of a slide, or better, rub them together in a small mortar, but use only sufficient alkali to make a soft paste. The alkali softens the scrapings, renders them transparent but does not act upon the chitinous covering of the parasite or its eggs. The material may be examined after a few minutes, but it is best to wait for half-an-hour or more to allow of the more complete action of the alkali. The mixture is then spread in a thin layer over a clean slide, and a second slide pressed firmly down over the scrapings to flatten them out. This makes the film sufficiently clear for a microscopic examination. The preparation is then placed on the platform of the microscope and examined with a magnification of 40 or 50 and with a moderate light, such that the contour of the epithelial scales are quite appreciable. The preparation is then subjected to a systematic scrutiny and if necessary the whole of it examined. The examination only occupies a few minutes. Sometimes it is necessary to search several preparations before the parasite can be discovered. As a rule it will be found in one or several of its stages, sometimes an egg or two, perhaps containing larvæ, sometimes one or several free larvæ, nymphs or adults; generally the latter are females, males are seldom seen. The discovery of the parasite is most difficult when the cases have been previously treated. The following is a list of a dozen cases, giving the age of affected animals and the results of microscopic examination.

Breed.	Age.	Parasites found.
Scotch collie	6 mos.	1 female, 1 larva, several eggs
Black pom.	4 wks.	2 females and nine eggs
Irish terrier	4 mos.	1 female
Scotch collie	adult	1 ovigerous female, several eggs
Yorks. terrier	5 mos.	1 female
Collie	5 „	several adults, larvæ, eggs
Irish terrier	3 „	2 females
Chocolate pom.	7 „	4 eggs containing larvæ
Fox terrier	3 yrs.	several adult sarcoptes
Irish „	2 „	1 female
Mongrel „	aged	1 female and 1 egg
Irish „	9 mos.	several sarcoptes, adults, larvæ.

It has been recommended that the mixture of scrapings and alkali be centrifugalised previous to examination, but that can only be of service if a large quantity of alkali be used in the first instance.

Differential Diagnosis. Several skin diseases may be distinguished from sarcoptic mange by their symptoms and the result of microscopic examination. The following may be noted :—

Follicular Mange often attacks the same areas as in sarcoptic mange. It is not, however, accompanied by much itching. In the purulent form the small worm-like demodex may be easily discovered in films of pus from the minute abscesses. (Photo 12). In large abscesses with blood stained contents the parasites are difficult to find. In the squamous form in scrapings of the thickened epidermis treated as for sarcoptic mange the small demodex is easy to demonstrate.

Ringworn is uncommon in the College practice. It is accompanied by little or no pruritus and the lesions are circular in outline. Scrapings are taken and treated as for mange, but the hairs must be particularly examined. On a slide a thin film is made, covered with a cover glass and examined under a fairly high power, 200 to 500. The broken condition of the hairs may be noted and the round colourless spores of the trichophyton identified near the broken ends in or around the hairs.

An Itchy Condition of the skin of the back and butt of the tail is noticed frequently in adult dogs. The skin is often scaly, wrinkled, reddened, and the hair may fall out in patches. No parasites can be found in the lesions. Many cases of skin diseases that are diagnosed as eczema are no doubt affected with sarcoptic mange.

I need hardly refer to *Symbiotic Mange* which affects only the inner side of the external ear. The parasite which causes it is commonly called the symbiotes auricularum but more properly the otodectis cynotis. (Photos 13 and 14). These parasites may often be seen with the naked eye as grey specks moving over the brown crusts when the inner surface of the external ear is examined. The cases are not nearly so numerous in the dog as in the cat.

The Harvest Bug occasionally causes much pruritus in the dog.

Treatment of Sarcoptic Mange. Attention should be paid to the complete isolation of the patient to prevent the spread of the disease to other dogs. Whatever treatment is applied, the chief secret of success is thoroughness in its application. One sometimes considers the desirability of clipping off the hair and certainly in long haired dogs the clipping of the coat facilitates treatment, but this need not be done unless the case does not improve. I have the dog first washed thoroughly with soap and water in order to remove the scales and the excess of epidermis. The kind of soap used, I do not think matters, so long as it is carefully rinsed off afterwards. I usually recommend a hard soap. The dog is then dried and a parasiticide dressing applied. I commonly use a dressing consisting of sulphur sublim 2 parts, oil of tar, potassium bicarb *aa* 1 part and lard 8 parts. This ointment is well rubbed into and around the lesions, a much greater area than is apparently involved being dealt with. When there is any doubt as to the extent of the disease, the whole body is treated. In the latter case, during cold weather, the ointment is applied to one half of the body one day and to the second half the following day. The ointment is applied again on the third day and the animal washed at the end of the week. The bedding of the kennel is destroyed, a little 1 per cent. solution of Jeyes' fluid sprinkled over the floor and walls and new straw or other bedding laid down. This is done every week till the animal recovers. The itching soon ceases. The skin, however, remains scaly and the hair continues to fall out for a time. This treatment is continued till the new hair begins to appear. The skin is usually quite normal again in three or four weeks. During treatment the dog is allowed a generous diet, and if the weather is cold, kept warm and comfortable. The treatment of such cases is always most difficult in cold weather. In refractory cases tonics such as liquor arsenicalis may be given internally, in addition to the external treatment. As for the medicinal agents used, care should be taken to apply no dressing that is likely to be poisonous. The dressing may be licked off and swallowed. On that account mercurial, creosote and carbolic preparations should be avoided. Sulphur and oil of tar are effective parasiticides which have no serious effect upon the patient. The alkali may ensure greater penetration of the active agents to allow of their reaching and destroying the parasites, and in the form of an ointment these agents are more intimately incorporated with the skin. Because of a deficiency in this respect watery dressings are not so efficacious. Of other preparations used Huytra and Marek employ the following dressing: Oil of tar, soft soap *aa* 1 part, alcohol ½ to 10 parts. Friedberger and Frohner recommend cresol in the form of—cresol, soft soap *aa*

1 part, alcohol ½ to 10 parts. Peruvian balsam dissolved in 1 to five parts of alcohol may be applied with success in mild cases of the disease in small dogs, is pleasant to use but is expensive.

After recovery of the animals, the bedding should be burnt, the kennels disinfected with boiling water or 2 per cent. creolin or other strong disinfectant and the utensils, brushes, clothing, boiled or immersed in some reliable disinfectant fluid.

Danger of Transmission of Sarcoptic mange of dogs to other animals and to man. Finally I may refer to the transmissibility of sarcoptic mange of the dog to other species of animals. The Sarcoptes scabiei v. canis has the dog only as its permanent host, but occasionally it may find its way to and produce temporary effects in other animals and in man. According to Zürn the sarcopt of the dog can be conveyed to the pig and horse. Occasionally the owner of a mangy dog tells us that his or her hands have become very itchy and little nodules may be seen between the fingers or on the arms.

On one occasion a woman brought to my notice a dog affected with sarcoptic mange. She told me that she was accustomed to allow the dog to sleep in her bed and that the skin of her abdomen and breast had become itchy and reddened. After application of the ointment which was used also for the dog, the affection soon disappeared. The appearance of canine scabies in man has been recorded by Grognier in a student after treating a mangy dog, by Viborg in a man and a woman who possessed an affected animal, by Beit in a child, by Hertwig, by Delafond in a student and himself. Many cases in human beings have been seen by Friedberger and Fröhner in Germany. Gerlach transmitted the disease artificially from the dog to man. In many of the cases recorded, recovery only took place after the application of a parasiticide dressing.

DESCRIPTION OF PHOTOGRAPHS.

1. *Sarcoptes Scabiei v. canis.* Ovigerous female—ventral aspect. Contains one egg obliquely placed between last two pairs of legs. The parasite is so transparent that the spinules on the dorsal surface can be seen.
2. *Sarcoptes Scabiei v. canis.* Male—ventral aspect. The ambulacral suckers of the two anterior pairs of limbs are folded backwards.
3. *Sarcoptes Notoedres* (dog). Female—ventral aspect.
4. ,, ,, ,, ,, dorsal aspect.
5. ,, ,, ,, Male above, young female below; one empty egg at right side.
6. *Sarcoptes Notoedres* (dog). Eggs from one gallery.
7. ,, ,, ,, Egg containing larva fully developed.
8. *Sarcoptes Notoedres* (dog). Two free larvæ—ventral aspect.
9. *Sarcoptes Notoedres* (dog) One free larva—more highly magnified than (8).
10. *Sarcoptes scabiei v. canis.* Nymph—ventral aspect.
11. *Collie affected with sarcoptic mange.* Lesions marked round the eyes and on hind limbs.
12. *Demodex Folliculorum* (dog).
13. *Otodectis Cynotis* (dog). Female—ventral aspect.
,, ,, ,, Male—ventral aspect.

The CHAIRMAN: We have all listened with pleasure and profit to Prof. Craig's interesting paper, and I am sure that several members will be able to contribute something to the discussion on this very important subject.

Mr. WATSON: This is a subject of great importance, and it has been dealt with by Prof. Craig in the extremely able way that characterises all his handling of such questions. But in view of the importance of the subject I do not think that at this late hour we could do justice to the paper in any discussion that might ensue. I therefore propose that we adjourn the discussion until our next meeting in May. By that time the paper will have been printed and circulated and we will be in a much better position to do the justice to it that it deserves.

Mr. NORRIS: I have very much pleasure in seconding the motion. Would you allow me to mention one point that might be of use? Prof. Craig mentioned the great difficulty in finding these parasites in some specimens sent to him. Now, I have some little experience in examining material sent in for microscopic diagnosis. I have found great difficulty owing to the material not being properly procured. It only gives men a tremendous lot of trouble and worry for nothing, examining specimens not properly collected. I think that practitioners should be instructed that when sending in material they take every precaution to adopt the correct procedure in obtaining the specimens. A great deal depends upon the selection of material for the microscope.

The CHAIRMAN: Is it your wish that this discussion should be postponed for a future meeting? Does that meet with your unanimous approval?—Yes.

Mr. HENEY: I think it is a very poor compliment to the lecturer to suggest that this discussion should be postponed for about six months. We have about half-an-hour to spare, and it might be better to discuss the matter to some extent and then postpone further discussion, if it be your pleasure to do so. It is not fair to us that the scientific part is left to the end, and that three-fourths of the time is occupied in arguing small matters.

Mr. WINTER: I think that an adjournment of the discussion is the very highest compliment we can pay to the lecturer.

Mr. WATSON: It is meant as a compliment to him.

Mr. WINTER: I heartily approve of the adjournment. We could not possibly have a discussion lasting half-an-hour that would do justice to the paper.

It was eventually agreed that the discussion on the paper should take place at a subsequent meeting.

SOUTH EASTERN VETERINARY ASSOCIATION.

[NATIONAL V.M.A. SOUTHERN BRANCH.]

The second annual general meeting was held at the Royal Mount Ephraim Hotel, Tunbridge Wells, on Thursday, January 15th. Mr. James Crowhurst (F), Canterbury, presided, and the members present included Prof. Wooldridge (F), London; Messrs. E. Lyne Dixson, Margate; Percy Gregory, Tonbridge; Elmer Ebbetts, Rochester; Cecil Crowhurst, Maidstone; J. H. Ripley, Hurst Green; A. C. Burton, Battle; T. A. Huband (F), Hastings; J. B. Dier, East Grinstead; W. Caudwell (F), Chertsey; H. P. Hogben, Folkestone; T. F. Hogben, Ash; P. J. Austin (F), Pembury; D. R. Chalmers, Tunbridge Wells; T. Hibbard, Gillingham; J. Basil Buxton (F), London; E. W. Morris, Uckfield; G. Fordham, Ashford; W. R. Emery, Guildford; W. W. Gulliford, Lympne, Hythe; G. H. Livesey, Hove, President, Southern Counties Division, N.V.M.A.; W. H. Brown, South Kensington; A. Whicher, Bexhill-on-Sea; J. M. Richardson, Deal; E. M. Perry, Eastbourne; Septimus Dixson, London; Theo. C. Toope, Dover, hon. secretary and treasurer; and two or three others who omitted to sign the attendance book.

The minutes of the last meeting, which were taken as read, were adopted.

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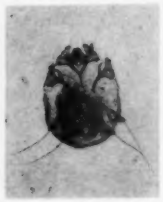

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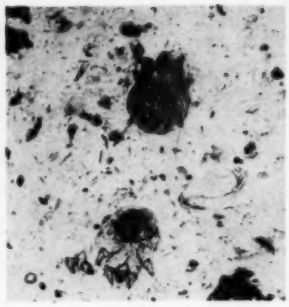

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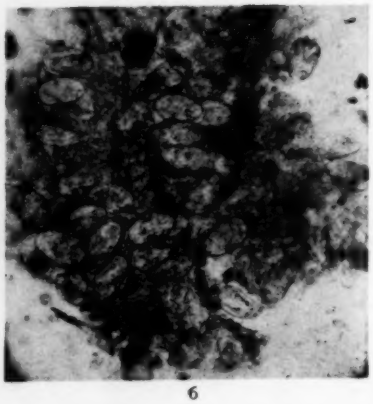

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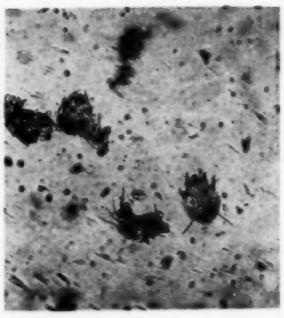

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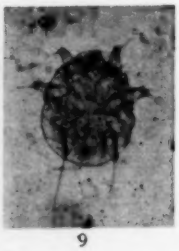

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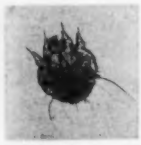

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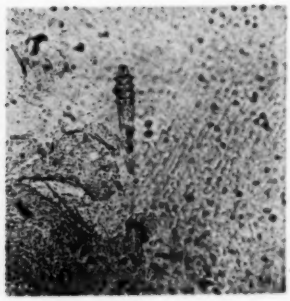

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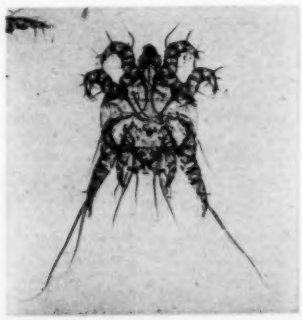

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SARCOPTIC MANGE IN THE DOG. PROF. J. F. CRAIG, M.A., M.R.C.V.S.

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ELECTION OF OFFICERS.

Mr. T. A. HUBAND said he had very great pleasure in proposing the election of their friend Mr. E. Lyne Dixson, as President of the Association for the ensuing year. When Mr. Toope was proposing the formation of that Society he very kindly asked him (Mr. Huband) to give what little help he could, a request which it had given him great pleasure to respond to. He was more than pleased that Mr. Toope's efforts had been so successful. Two names were very prominent at that time, one was the name of a gentleman very highly esteemed in Kent, and the other was equally highly esteemed in Sussex. He regretted to say that one was no longer with them. He referred to the late Richard Roberts, and they deplored his loss, but the other remained, and it was his proud privilege, and he was sure all the members would support him in his proposition, to move that their friend Mr. Dixson be elected President for the ensuing year. He did not like saying things in praise of a man while in his presence, but Mr. Dixson and he were college chums and had been good friends ever since, and the longer he had known Mr. Dixson the greater had become his respect and esteem for him. He had great pleasure in asking them to elect Mr. Dixson as President of the South Eastern Veterinary Association for the ensuing year.

Mr. JAMES CROWHURST, the retiring President, said he rose with great pleasure to second the proposition. It would have been his privilege of putting that proposition before the Council when they met to consider the question of officers for the ensuing year, but unfortunately through some mistake he failed to receive a notice of the Council meeting, and was therefore not present. He had, however, previously spoken to Mr. Toope and recommended strongly that Mr. Dixson should be his successor. He (Mr. Crowhurst) felt convinced that the interests of the Association would be in good hands if they elected Mr. Dixson as President. Mr. Dixson's views and his own were much in accord, and he was sure the good work done in the past would be carried on with considerable benefit to that Association. He felt it desirable that a successor should be nominated, and that the honour of being President should not be held by one too long. He had been elected for a second year, and he thought that was more than he should have accepted, he felt very strongly that it was desirable that the honour should be passed round, for he believed in that way it was beneficial to the Association.

The motion was carried unanimously, and on taking the Chair Mr. Dixson was given a most cordial reception.

Mr. DIXSON said his first duty was the very pleasant one of thanking them most sincerely for their unanimous vote in electing him as President of that Association. Not knowing for certain whether any other gentleman would be nominated, or whether he should be elected or not, he had not prepared the usual presidential address to deliver that day, and in view of the work there was to be got through he thought perhaps it was better that that was so, but it would be his pleasure to read his address at the next quarterly meeting wherever that might be held. He could not but refer in the first place to the good work that that Association, although so young, was doing for the veterinary profession. He thought that they were unanimous one and all as was evidenced by the large gathering they had that day, and that they were all anxious that matters appertaining to their own interests should be safely guarded. He thought by the correspondence that Mr. Toope had had with regard to the insurance companies' fees was evidence of that. If when they were combined they could not get things righted, how could they have done anything individually? It was only by united efforts and by remembering the motto of their College that "Unity is strength" could they expect to get that which they desired. During the past two years the position of President of that Association had been held by Mr. James Crowhurst, who was a highly esteemed member of the Kentish practitioners, and they all knew that he had carried out the duties most satisfactorily, with credit and honour to himself and in the best interest of the Society of which he was President. He (Mr. Dixson) would endeavour, as far as possible, to follow in Mr. Crowhurst's footsteps, and to do what he could to carry out the duties the members had put on him faithfully, zealously and to the best of his ability. He could only say he wished all the members a happy and prosperous New Year, and he hoped that Association might flourish and prosper, and he hoped by united action they would be able to further and better the conditions which they all had so much at heart.

Vice-Presidents. Messrs. J. Crowhurst, W. Caudwell, W. H. Crowhurst, P. Gregory, T. F. Hogben, and E. W. Morris were elected on the proposition of Mr. T. Hibbard, seconded by Mr. Emery.

The Council of the Association was elected, on the motion of the President, seconded by Mr. Buxton, to consist of the following:—Messrs. J. B. Dier, G. W. Dunkin (Canterbury), C. Crowhurst, Elmer Ebbetts, F. C. Gillard (Folkestone), T. Hibbard, T. A. Huband, J. W. Richardson, and J. H. Ripley.

Inspectors' Committee. This Committee was elected as follows:—The President, Vice-Presidents, Messrs. J. B. Dier, C. Crowhurst, Elmer Ebbetts, T. Hibbard, and J. H. Ripley, on the motion of Prof. Wooldridge, seconded by Mr. Emery.

Hon. Secretary and Treasurer. The PRESIDENT proposed the re-election of Mr. Theo. C. Toope. In doing so, said no words were required to recommend that motion to their notice. They all knew what a worker Mr. Toope was and how he had the interest of the Association at heart.

Mr. JAMES CROWHURST, in seconding, said he had had some experience of Mr. Toope's work from the inception of that Association, and he was sure they were very fortunate indeed in having as Secretary a man who had given and was prepared to give so much time and attention to the work of that Association. They could not possibly have a better man than Mr. Toope in every way. (Applause).

Mr. TOOPE briefly acknowledged the compliment.

Hon. Auditor. Messrs. H. P. Hogben and G. W. Dunkin, were re-elected, on the proposition of Prof. Wooldridge, seconded by Mr. Gregory.

NEW MEMBERS.

Mr. BURTON, Battle, was proposed by Mr. Ripley, and seconded by Mr. Morris, for election as a member of the Association.

Mr. T. CLYDE, Dover, was proposed by Mr. Toope, and seconded by Mr. Richardson.

Mr. PERRY, Eastbourne, was proposed by Prof. Wooldridge, and seconded by Mr. Gregory.

All three were duly elected.

NOTES AND OBSERVATIONS ON TWENTY CASES OF TUBERCULOSIS.

WILLIAM CAUDWELL, F.R.C.V.S., Chertsey.

Mr. President and Gentlemen,—A few weeks ago it occurred to me that if our zealous secretary had not much on the tapis for this meeting he might accept an offer from me to read a few notes to you on cases that I have dealt with under the Tuberculosis Order of 1913, and I take this opportunity to thank him for placing the matter on the agenda

It is with some diffidence that I submit these notes for your consideration, inasmuch as I feel that many of

you who are inspectors have had a much larger experience of the disease than myself, and have also dealt with a larger number of cases under the Order, but I trust that an interchange of experiences will prove helpful to all of us.

I have divided my cases into two categories, first those which I confirmed by clinical and other evidence, and second those which were not confirmed. The number of each case corresponds with the number in my report.

Cases of Tuberculosis.

Case 2. Cow in milk.

Symptoms. Emaciation, coughing frequently, accelerated respiration, crepitation in both lungs, temperature 105°. The owner declined his consent to apply the tuberculin test, and eventually he had her slaughtered.

Post-mortem appearances. Both lungs are in a condition of advanced tuberculosis, the left costal pleura is thickened with tuberculous growths. The mediastinal and bronchial glands are much enlarged. The dorsal, mesenteric and hepatic lymphatic glands are tuberculous. The liver is also tuberculous.

Case 3. Cow in milk, six years old. She calved ten weeks ago.

Symptoms. Emaciation, temperature 102.3°, coughs occasionally, crepitation in the left lung, induration of the right posterior quarter of the udder. I obtained a sample of milk from the diseased quarter and made a microscopical examination but failed to find any acid-fast bacilli. With the owner's consent I applied the tuberculin test, and a reaction followed, the temperature having risen 4° about the 13th hour after the injection.

Post-mortem appearances. Carcase emaciated, miliary tuberculosis of both lungs. The bronchial and mediastinal glands are much enlarged and caseous. The hepatic glands and the liver are also tuberculous.

Case 4. Cow in milk, five years old. She calved a few weeks back.

Symptoms. She is emaciated, and has a slight cough, the right half of her udder is much enlarged, hard, nodular and painless, and the right supramammary lymphatic gland is also much enlarged. I took samples of milk from the diseased quarters, and on making a microscopical examination I found acid-fast bacilli in the smears.

Post-mortem examination. The right half of the udder weighs 28 lb; it is very firm and cirrhotic, and contains small tubercles throughout. The right supramammary gland is 5 inches long. The left half of the udder appears to be normal and weighs 7 lb. Both lungs are tuberculous, especially in the anterior lobes, and the pleura is thicked. The bronchial and mediastinal glands are enlarged. The mesenteric glands are much enlarged and caseous. The hepatic glands are slightly diseased. The liver is free from tubercles, but its ducts contain some flukes. The spleen and kidneys are healthy. The right lumbar lymphatic glands are much enlarged. Both horns of the womb are tuberculous, the cotyledons are of a bright yellow colour, and the smears which I prepared from them are very rich in tubercle bacilli. A smear from the muco-purulent fluid contained in the womb shows only a few tubercle bacilli.

Case 5. Cow in milk.

Symptoms. Body emaciated, udder apparently healthy, eyes sunken, frequent cough, crepitation in the right lung. Temperature 105°. I tested the animal with tuberculin by injecting 50 minims subcutaneously, and I applied the ophthalmic test at the same time. At the 12th hour a bead of muco-pus had appeared in the inner canthus of the eye, accompanied with a flow of tears.

Post-mortem appearances. The pharyngeal, bronchial and mediastinal glands are enlarged and caseous, and both lungs are extensively tuberculous. The hepatic and gastric lymphatic glands are slightly enlarged. The spleen and liver are healthy. One kidney contains small tubercles. The supramammary lymphatic glands also appear to be slightly tuberculous, but the udder seems to be normal.

Case 7. Cow in milk, five or six years old.

Symptoms. Very emaciated, coughs occasionally, crepitus in both lungs; right supramammary gland is enlarged, and the temperature is 103·8°.

The owner decided to have her slaughtered without reference to compensation.

Post-mortem appearances. The lungs are in a very advanced condition of tuberculosis, and the bronchial and mediastinal glands are much enlarged and caseous. The lungs weigh nearly 48lbs. The parietal and visceral pleuræ and also the peritoneum show extensive tubercular proliferations. The pharyngeal and the hepatic glands are enlarged. One horn of the womb is also tuberculous.

Case 11. Cow in milk, seven years old.

Symptoms. Emaciation, coughing, crepitus in both lungs, tenderness and grunting is evinced on percussing the chest. Temperature 101°. The udder is indurable in its right front and left hind quarters. I found no acid-fast bacilli in the milk.

Post-mortem appearances. Carcase much emaciated. Both lungs extensively tuberculous, some of the lesions are old and caseous and others are recent. The bronchial and mediastinal glands are much enlarged and caseous. Liver and spleen normal. A lobule in one of the kidneys contains some small tubercles. The mesenteric glands are much enlarged. Both horns of the uterus are tuberculous, one is diseased to a greater extent than the other; both contain a quantity of thick, white, tenaceous mucus, the cotyledons are enlarged, the walls are thickened with tuberculous growths, and numerous tubercles stud the mucous surface.

Case 13. Cow in milk.

Symptoms. She is very emaciated and coughs; auscultation reveals crepitation in both lungs; her appetite is very bad, and she has profuse diarrhœa. The owner states that she has reached her present condition within a few weeks. Her temperature is 104°. I injected a dose of tuberculin subcutaneously and instilled into the eye a few drops of eye tuberculin. A reaction followed the eye test. I prepared smears from the fæces for microscopical examination and I found acid-fast bacilli in them.

Post-mortem appearances. Both lungs are extensively diseased, and are very large and heavy. Some of the sections show calcification. The bronchial and mediastinal glands are much enlarged, and the pleuræ and peritoneum are "grapy." The hepatic and left popliteal glands are tuberculous. One horn of the womb is much diseased throughout its extent, and its wall is an inch thick. The other horn is only slightly tuberculous. Both kidneys show small tubercles in some of their lobules. The liver, spleen, and udder are apparently normal. A prepectoral gland which was felt during life to be enlarged is tuberculous.

Case 14. Cow in milk, 2½ years old, calved eight weeks ago.

Symptoms. She is emaciated and coughs, her temperature is 102°, appetite poor, crepitation in both lungs, especially the right, bowels normal. I am informed that this animal has recently been tested, so I applied the double tuberculin test, and a good reaction followed.

Post-mortem appearances. The bronchial and mediastinal glands and both lungs are in an advanced stage of tuberculosis. The visceral and parietal pleuræ are thickened. The mesenteric and the hepatic glands are much enlarged. The liver and both kidneys are slightly tuberculous. The spleen is normal. The womb has recently become impregnated, despite the animal's advanced condition of tuberculosis.

Case 15. Cow in milk, 9 or 10 years old.

Symptoms. She is much emaciated and coughs frequently, breathing accelerated, appetite moderate, temperature normal. Crepitation is audible in both lungs, the fæces are normal. A tumour as large as a cob nut is visible, and is felt attached to the rumen in the angle formed by the last rib and the first lumbar transverse process. The udder is apparently normal. I tested the animal with tuberculin, and a good reaction followed.

Post-mortem appearances. The udder and its lymphatic glands appear normal, and also the pharyngeal glands. Both lungs are extensively diseased. The bronchial and mediastinal glands are much enlarged and caseous. The visceral and parietal pleuræ, the visceral and parietal peritoneum and the omentum are all more or less covered with tuberculous proliferations. The heart presents a beautiful specimen of tuberculous pericarditis (a section of which I have brought with me). The liver and spleen are covered with tubercles externally, but their substances are normal. The mesenteric glands are much enlarged, and one horn of the uterus is slightly tuberculous.

Case 16. Cow in milk.

Symptoms. Emaciated, coughs frequently, crepitus in both lungs, the udder is apparently normal, temperature normal, her bowels are relaxed, and I found a few acid-fast bacilli in smears prepared from her fæces. I applied the tuberculin test, and at the 16th hour the temperature had risen to 104·6°

Post-mortem appearances. Both lungs and their glands are diseased, and there is adhesion of the left lung to the ribs. The liver also contains tubercles.

Case 17. Cow in milk, six or seven years old, calved five weeks ago.

Symptoms. She is emaciated and coughs; her appetite is diminished; the respiratory murmur is increased, but no crepitus is detected; temperature 103 deg. The right front quarter of the udder is very large and is painful; its secretion is changed in appearance. A microscopical examination failed to detect any acid-fast bacilli in the smears which I obtained from it. At the time I tested the animal I found her temperature was 103.6 deg., so I applied the double test. At the 16th hour her temperature was 105·2 deg. and an ophthalmic reaction was present.

Post-mortem Appearances. Both lungs are much diseased and contain scattered foci of small purulent collections. The bronchial and mediastinal glands are diseased and caseous. The liver and one kidney show a few minute tubercles on their surfaces. The mesenteric glands are much enlarged and caseous. Both horns of the uterus are tuberculous to an unequal extent and contain muco-purulent material.

Case 19. Cow not in milk; calved seven months ago.

Symptoms. Body emaciated; temperature 105 deg.; respiration accelerated and accompanied with cooing sounds in both lungs; frequent cough and bad appetite. Her udder appears normal. She is said to have been unthrifty for several months and has wasted rapidly in the last few weeks. At the time I tested her the temperature was still 105 deg., so I applied the double test and a moderate ophthalmic reaction followed.

Post-mortem Appearances. Both lungs are affected with miliary tuberculosis and contain small abscesses. The pleura is covered with tuberculous growths. Some of the lobes of the lungs are connected by adhesions. The bronchial and mediastinal glands are much enlarged and caseous. The lungs weigh 43lbs. The hepatic glands are slightly tuberculous. The liver and spleen are normal. Both kidneys contain good sized tubercles in the bases of many of their lobules (a specimen of which I show you). The mesenteric glands are enlarged and caseous. The uterus is normal. The udder and its lymphatic glands appear normal.

Case 20. Cow not in milk, six years old.

Symptoms. I found the animal down and unable to rise: body extremely emaciated; cough frequent, appetite bad. I tested her but no reaction followed. The owner slaughtered her himself and I had no opportunity of making a post-mortem examination, but a portion of lung and the uterus were reserved for my inspection. The lung showed the disease in an advanced stage and both horns of the womb were also in an advanced stage of tuberculosis.

Case 21. Cow in milk, five years old.

Symptoms. Body emaciated; udder normal; she coughs frequently, her respiration is accelerated and auscultation reveals crepitation in both lungs, fæces normal. An enlarged lymphatic gland is felt close to right first rib. Temperature 102 deg. She calved in June and was stocked in July. I tested her with tuberculin and her temperature rose 3.5 deg.

Post-mortem Examination. The lungs and the bronchial and mediastinal glands are extensively diseased and caseous, and together weigh 34lbs. The bronchial and mediastinal glands alone weigh 9lbs., and are some of the largest which I have seen although she is a small cow of the Jersey breed. The mediastinal gland is eight or nine inches long. The anterior lobes of the lungs are very heavy and in a state of miliary tuberculosis and the rest of the lung tissue contains caseous masses throughout, which vary in size up to three inches in diameter. The hepatic glands are enlarged and small tubercles are present on the surface of the liver. The other organs appear to be free from tuberculosis. The right prepectoral lymphatic gland is caseous and the size of a pigeon's egg. The uterus contains a fœtus about four months old.

Case 23. Cow in milk about five years old.

Symptoms. Emaciation, coughs, crepitus in both lungs; temperature 105°. The udder is apparently healthy, appetite diminished, fæces normal.

I applied the double tuberculin test, and at the 12th hour her temperature had risen to 107·2°, and there was a double bead of muco-pus in the inner canthus of the eye and tears had run down the face.

Post-mortem examination. Both lungs are extensively tuberculous, and the pleura is thickened. The bronchial and mediastinal glands are enlarged and caseous. The right prepectoral gland is enlarged and caseous and it could be felt during life. The mesenteric glands are much enlarged and caseous. The kidneys are normal. The spleen shows some tuberculous growths on its surface. The liver is not tuberculous, but it shows evidence of fluke disease. The womb is tuberculous in both horns. One of the supramammary glands shows slight evidence of caseation.

In this, and in most cases of uterine tuberculosis, I have noticed during the animal's life a sticky mucous discharge adhering to the under surface of the tail opposite the labia, which had escaped from the womb.

Case 24. Cow in milk, about seven years old.

Symptoms. The posterior quarters of the udder are moderately indurated in their upper parts, especially the right one, and the supramammary lymphatic glands are enlarged. The milk obtained from the diseased quarters is quite normal in appearance, but on microscopic examinations of samples which I took, I found acid-fast bacilli in the smears. The cow's temperature is normal, she feeds well, fæces normal. I did not hear her cough, and no evidence of lung trouble could be detected. A few days after my first inspection of the animal, I served the owner with a notice of intended slaughter certifying that she was suffering from tuberculosis of the udder, and after valuation she was destroyed.

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Post-mortem examination. I found the udder in the condition already described. Its weight is 28lbs. The supramammary glands are much enlarged, but are not caseous, the right one weighs 9½ ounces. The liver is enlarged and a great number of tubercles are present in its upper and lower lobes both on its surface and in its substance, and its lymphatic glands are enlarged. The bronchial glands are much enlarged and caseous, the mediastinal gland is ten inches long and is cystic. These glands weigh 4lbs. I could not find any tubercles in the lungs, they look exceptionally healthy, and only weigh 8 lbs. without the glands. One of the mesenteric glands is as large as my fist and is caseous. The spleen, kidneys, uterus, and pharyngeal glands are normal.

In nearly all the foregoing post-mostem examinations I have found the lungs and the bronchial and mediastinal lymphatic glands to be diseased. I have found the mesenteric glands diseased in nine cases. The liver was diseased in seven cases, and the kidneys in six. The pericardium and heart in one case. The spleen was seldom found to have any tubercles on its surface or in its substance. I have been surprised at the frequency with which I have found the womb to be affected with tuberculosis, and I consider that it is interesting from a diagnostic point of view. In neither of the cases of mammary tuberculosis would the owners have the tuberculin test applied, nor was it necessary. The lymphatic glands of the liver were often found to be diseased, but the pharyngeal glands in two cases only.

Cases which were not Tuberculosis.

Case 1. A yearling heifer, suspected to be suffering from tuberculosis with emaciation.

I applied the tuberculin test, but no reaction followed, so the detention notice was withdrawn.

Case 6. Cow in milk, suspected of suffering from tuberculosis with emaciation, and also disease of the udder.

Symptoms. Slight cough, temperature 102·4°, right half of the udder indurated, appetite bad. I obtained a sample of the milk from the diseased quarters and made a microscopical examination for the detection of acid-fast organisms, but none were found. I injected a dose of tuberculin subcutaneously, and instilled a dose of eye tuberculin into the left eye. No reaction followed the double test, so I withdrew the detention notice which I had served. The owner subsequently, on my advice, had the animal slaughtered, and the following were the post-mortem appearances: On removing the abdominal viscera an abscess burst and gave exit to a quantity of putrid, dark coloured pus, which was found to have been contained in the spleen, and it communicated with a fistula in the reticulum. I searched for a foreign body, but none was found. The spleen also contained several small abscesses, as also did the liver and the lungs, and I am of opinion that these were of metastatic origin. I prepared some smears by the Ziehl-Neelsen method, but could find no acid-fast organisms. I also stained other smears with methylene blue solution and found necrosis bacilli in abundance.

Case 8. Cow in milk, suspected of suffering from tuberculosis of the udder.

I made a microscopic examination of some carefully prepared smears, but could find no acid-fast bacilli, so the detention notice was withdrawn.

Case 9. Accidentally omitted.

Case 10. Yearling shorthorn heifer, suspected of suffering from tuberculosis with emaciation.

Symptoms. Emaciation, dulness, loss of appetite, suspension of rumination, no cough, respiration and temperature normal. I applied the tuberculin test and no reaction followed, consequently the detention notice was withdrawn.

With good nursing the heifer eventually recovered and regained flesh.

Case 12. Cow in milk, suspected of suffering from tuberculosis with emaciation.

Symptoms. She is much emaciated, her coat is dull and erect, appetite variable, diarrhœa was also present. Temperature normal. I obtained a sample of her fæces and found a few acid-fast bacilli in the smears which I examined. I applied the tuberculin test but no reaction followed, so I withdrew the detention notice. Subsequently I tested her for Johne's disease with avian tuberculin which was kindly supplied to me by Sir John M'Fadyean, and a slight reaction ensued. This cow was eventually slaughtered, and I made a post-mortem examination, which confirmed the diagnosis of Johne's disease The mesenteric lymphatic glands were slightly enlarged and juicy, and the small intestine showed characteristic thickening and corrugations. I prepared smears from a mesenteric gland and also from scrapings of the intestinal mucous membrane, and immense numbers of acid-fast bacilli were present, both singly and in groups.

Cases 18. Two cows suffering with chronic disease of the udder. I obtained samples of milk and made microscopic examinations for the detection of acid-fast bacilli, but none were found. A large number of streptococci was present in each sample of milk. The detention notices were withdrawn.

Case 22. This animal reacted to the tuberculin test, but was not considered sufficiently emaciated to be slaughtered under the Order.

Discussion.

The President said on behalf of the meeting he wished to thank Mr. Caudwell for the very kind thought shown in getting up that paper and recording clinical cases which went to prove that there was hardly any part of the body that was not affected with the disease. That was exemplified in the cattle markets in London, which those who attended the post-graduate course had an opportunity of studying. There were one or two things he would like them to discuss. He would like to ask Mr. Caudwell, who had mentioned uterine tuberculosis, whether in his opinion, or whether in the opinion of any member of the Association present, it was hereditary and was conveyed from cow to calf. In the second place he would like to hear from him as to the reliability of the tuberculin test. He himself had no doubt about its absolute reliability, but he did not know whether Mr. Caudwell had had any case in which the reliability of the tuberculin test had been called into question. Then as to œstrum in tuberculous cows. It was a peculiar fact recognised by the medical profession that œstrum was greater in the human female that was tuberculous or consumptive. He begged to thank Mr. Caudwell for his paper and for the record of the cases he had given.

Mr. Toope said there was just one matter he would like to allude to—the question of the premature abortion of tuberculous cattle. He believed Mr. Caudwell had struck the right nail on the head. He (Mr. Toope) believed a great many cases put down to accidental causes were due to tuberculosis affecting the uterine system. He got the impression in his head many years ago that that was so; but within the last five years he had had the opportunity of examining cows that had aborted, and in one or two cases had aborted more than once—and in one case three times. These animals were suffering from tuberculosis of the womb. There were other cases of what was commonly called slinking, which he thought was also due to this, and not due to the abortion bacillus, there being no indication of con-

tagion. The frequency of tuberculous disease of the womb and ovary in these cases being very noticeable after slaughter. In the examination of the mammary gland for the tubercle bacilli, he did not think it was so difficult if they could diagnose the character of the induration of the udder. They might miss the bacillus on the first micro-examination of the secretion, but if persisted in they would get it eventually. He had never failed in a single case to get it. He had brought with him a most interesting specimen of tubercle bacilli from a cow which he had known since its birth. The cow five months ago showed slight induration and swelling in one quarter. He examined the milk and found no bacilli. He subsequently examined the milk again and found sufficient to persuade him that undoubtedly it was a tuberculous udder. She was a good cow, but he persuaded the owner to cease milking her and to report the case to the county. The owner said "No, I will not report it to the county, but will do as you suggest about the milk." She was kept and sent to the market, and an offer of £14 was made for her. The owner did not take it, and a week or ten days after he called to see the cow again, when he found her off her food. He examined the udder, which was larger than before and exceedingly hard and had no milk whatever, but in one quarter pure serum. He centrifuged this, and he found what he thought he could say was nothing less than an almost pure culture of bacilli, afterwards he found it possible to get it without centrifuging; there was no difficulty, and he believed his friend Mr. Buxton would bear him out that it was one of the richest specimens of tuberculous secretions he had examined. It was far and away richer than he (Mr. Toope) had ever examined. He wished to thank Mr. Caudwell for his interesting report of cases, which he hoped would give rise to discussion, but if not it was bound to give rise to considerable thought among them.

Mr. MORRIS said he would like to ask one question that had puzzled him for a long time. He had a cow that went up to 103° F., and he had had several go up to 103 2-5ths, the mean temperature being 100 4-5ths at night and 101° in the morning. These cows were all killed and were found to have a focus of infection. He would like to ask the meeting if anyone had found old tuberculosis surrounded by dense tissue, or, in other words, encapsuled.

Mr. HIBBARD asked Mr. Caudwell whether he considered that these cows with uterine lesions might be affected through transmission from the bull.

Mr. H. P. HOGBEN said he sent a cow from his market for tuberculosis of the udder. He only got a slight reaction, yet it was a very badly affected udder, but the cow had not had the bull at all. He did not think it followed that they could always rely on the test.

Prof. WOOLDRIDGE expressed his quota of thanks to Mr. Caudwell for the paper he had brought before the meeting, and thanked him particularly for the lucid way he had reported the cases and the results of his examinations. He (Prof. Wooldridge) thought at the present time the veterinary inspectors had a chance which had never been held out to them before to assist in the pathological problems connected with the diseases of cattle, and when reporting cases they would do well to follow Mr. Caudwell's example and refer to those cases that did not prove to be tuberculosis, so that from that data they could draw very valuable conclusions later. As Mr. Caudwell read through his cases, one or two points struck him particularly. Hitherto he had had some notion that the right hind-quarter was most frequently implicated. The notion was hazy that he had gathered, but on looking through the cases reported by Mr. Caudwell the same points seemed to crop up, and without getting down to exact cases he noticed in some instances it was the right hind-quarter alone affected, in other cases it was the right half affected, and in others both were affected, but the right hind-quarter was most frequently mentioned. He would like to know if others had had the same experience. Mr. Caudwell raised a question regarding œstrum. Mr. Caudwell did not regard tuberculous infection as a common cause of recurring œstrum, but he (Prof. Wooldridge) did not agree with Mr. Caudwell. Any stimulation of the genital apparatus might cause reflex action and functional derangement, and oft recurring œstrum. He did not suggest that was the only cause of recurring œstrum, but thought that it was a common cause. On that same point he (Prof. Wooldridge) thought Mr. Toope misunderstood Mr. Caudwell. He did not think Mr. Caudwell suggested that tuberculosis was the cause of the abortion that often occurred. Mr. Toope certainly thought it was, and he agreed with Mr. Toope. Undoubtedly abortion did occur, and recurring œstrum was the origin of that form of abortion.

There was one other point of some importance. He noticed particularly in case No. 20 referred to by Mr. Caudwell, a case which failed to react, and on a post-mortem showed extensive uterine lesions. That answered the point raised by the President, and he would like to agree with the President that it was absolutely infallible—at any rate he thought it was almost infallible, for when they got a cow, or cattle, that failed to react to tuberculin, she might be in the advanced stage. He thought they must recognise that at once, and as inspectors they must realise it—although there had been a failure. He did not think they should dream of applying the tuberculin test to all and sundry cases they suspected. Where symptoms were clear to clinically diagnose tuberculosis they should have sufficient confidence in their ability to diagnose without testing. Then he would like to ask Mr. Caudwell in the case of Johne's disease what the material was with which he tested.

Mr. CAUDWELL: Avian tuberculin.

Prof. WOOLDRIDGE said avian tuberculin as pointed out was of great service in Johne's disease, but was by no means consistent. He thought they could say the same thing for any test for Johne's disease, except the finding of the organism causing it.

Mr. CAUDWELL said something had been said about the failure of tuberculin to react. He had heard nothing said about the ophthalmic test in cases tested where the temperature previously was above the normal. He had hoped they would have heard something about the ophthalmic test in such cases.

Prof. WOOLDRIDGE agreed with Mr. Caudwell it ought to be applied much more frequently than it was. As far as comparing it with the subcutaneous method it was not so reliable, but where cattle were extensively affected one might get the ophthalmic reaction. In other cases where they had got the reaction to subcutaneous test they failed to get the ophthalmic. The best thing to do was to combine the two, and so leave the least margin of error. In cattle it was a reliable test. He found the same applied for other patients, for instance, the wild animals at the Zoo. In the case of monkeys it was somewhat difficult. The ophthalmic test had been applied, but it was not easy in those cases to verify the truth of the whole of the tests. Where there had been no reaction animals had been liberated in the Gardens, and in some cases exposed to infection, and it was difficult to follow them. In those cases where they had had positive reaction it had justified slaughter, but in other cases where there had been no reaction they had almost invariably been found free from tuberculosis. He said almost invariably. Recently he came across three or four cases that failed to react to the ophthalmic test, and yet were affected severely with tuberculosis. In the horse he used the ophthalmic test in conjunction with the subcutaneous, and did not get such good results. As far as the horse was con-

cerned, when testing with tuberculin he used 8 c.c., which was twice the usual dose applied to cattle. In some cases a larger dose still was advisable in the horse, and if there was no tuberculosis there was no harm, while if there was tuberculosis they were far more likely to get reaction.

Mr. GULLIFORD said he was called in by the police to a dairy of cows and found one he strongly suspected. He continued his examination and found two more. He got well marked reaction in all three cows. All the cows were slaughtered, and in two of them there was extensive tuberculosis, but in the third one there was no trace of the disease. Something had been said about the incubative stage. He would like to know whether it were possible to get reaction while the disease was in the incubative stage and when the animal was killed to find no disease. There was a watery appearance in the milk in that case in a portion of the udder. When the udder was examined, he found no signs of tuberculosis and the hardness seemed almost to disappear. He took samples and sent to the medical officer of health at Maidstone, and he reported that all the samples contained tubercle bacilli. It was more on that report than his (Mr. Gulliford's) that the cows were killed. In the case of the third cow the injection of the guinea-pig was still being carried out. It was rather annoying to him that on post-mortem there was no sign of the disease that could be detected by the naked eye examination.

Mr. CAUDWELL said he was very well pleased with the discussion. It was a great expression of confidence as to the tuberculin test, and he believed everyone present was a believer in its almost infallibility. When they tested an animal with a temperature above the normal they could not be satisfied without a subsequent injection. That was why he advocated the double test. He was sorry Mr. Gulliford was disappointed with the cases, in which two were all right and the third failed. He found no lesions after reaction, but he was afraid it was due to Mr. Gulliford's insufficient examination He had no doubt that there was some slight lesions that he overlooked. Mr. Dixson asked whether the disease was hereditary. He thought generally they could not regard it as hereditary. If it was, it was so in very few cases. He thought that possibly there might be an hereditary tendency. He thought it was hardly ever congenital, but it was possible that calves born of tuberculous parents offered greater susceptibility to disease than the progeny of sound parents, but that was open to question, he supposed. With regard to Mr. Toope's question upon abortion, he believed the frequent appearance of œstrum was due to abortion, and not directly to tubercular disease. Whether it was ever transferred to the bull, he thought the genital organs were very seldom affected: he did not think the bull was often responsible for transferring it to the female. With regard to Professor Wooldridge's suggestion that the right hind quarter of the mammary gland was most frequently diseased, he had not had sufficient experience to answer that question, but he could not understand why one quarter should be affected more than another with tubercular disease. As to reaction at 103°, the temperature of animals often went up to 103° naturally, but this instance quoted he thought was a case in the advanced stage of the disease, which failed to react. He should apply the ophthalmic test, and in all probability a reaction would be obtained.

Mr. GULLIFORD asked what period there should be between the tuberculin test and the ophthalmic test.

Mr. CAUDWELL said he applied them simultaneously.

A vote of thanks to Mr. Caudwell followed.

THEO. C. TOOPE, Hon. Sec.

NORTH MIDLAND VETERINARY ASSOCIATION

[NATIONAL V.M.A. NORTHERN BRANCH.]

The quarterly meeting was held at the Grand Hotel, Sheffield, on Tuesday, January 20th, 1914, at 5 p.m.

Present: Messrs. F. L. Somerset (in the Chair), J. S. Lloyd, S. E. Sampson, W. Collinson, W. Brown, T. Bowett, G. J. Furness, H. Thomson, W. Murgatroyd, A. D. Morgan, T. C. Fletcher, M. Robinson, C. Secker Smith, G. Green, E. Marrison, H. P. Lewis, H. R. Laycock, and H. W. Dawes; visitor, Mr. G. Blundell.

It was proposed by Mr. Collinson, seconded by Mr. Sampson, that the minutes of the last quarterly meeting as already published be taken as read.

The HON. SECRETARY then read the report of the Council Meeting held January 13th, 1914, when it was proposed by Mr. Thomson, seconded by Mr. Bowett, that the same be confirmed.

Arising out of the report of the Council Meeting it was mentioned that the Association were now affiliated with the Northern Branch of the National Veterinary Medical Association, and that the affiliation fees for 25 full members had been paid to Prof. Wooldridge, the treasurer. The President reported that in consequence of this it was necessary to appoint two representatives to the Council of the National Association, when it was proposed by Mr. Brown, seconded by Mr. Furness, that the President and the Hon. Secretary be appointed.

THE HUNTING MEMORIAL FUND.

The HON. SECRETARY read a letter which he had received from Prof. Macqueen and Mr. H. Gray with regard to the Hunting Memorial Fund.

The PRESIDENT said "I think this Association should do all that other Veterinary Associations are doing. Personally, I knew very little of William Hunting. I knew a little of him through his writings. No doubt some of you had the benefit of his acquaintance, but I think we shall all agree that the profession has sustained a severe loss by his decease. There is not the slightest doubt that he spent a good deal of his time and money for the benefit of the profession of which he was so great an ornament. I propose that a vote of condolence be sent to his family expressing our deep sympathy with them in their bereavement."

This was seconded by Mr. Fletcher, and carried by all present rising in their places.

The PRESIDENT explained that according to Rule 11 the available funds of the Association would not allow them to contribute at present towards the memorial.

The HON. SECRETARY suggested that the consideration of the matter be postponed for some months, because at the present time the veterinary profession are subscribing to the International Veterinary Association Fund, and it is quite recognised that nothing will be finally determined in connection with the Hunting Fund this year. He said "No doubt some of the members have already subscribed, as I intend to do myself. If anyone would like to send their subscriptions through myself or the Hon. Treasurer we shall be pleased to forward it." The Hon. Secretary suggested that the matter be left over for three months, and this suggestion was agreed to.

Mr. Lloyd nominated, and Mr. Fletcher seconded, Mr. WADSWORTH, veterinary surgeon to the Great Central Railway Co., for election as a member of the North Midland Veterinary Association. Mr. Lloyd reported that Mr. Wadsworth had been invited to attend the Meeting, but had written regretting that he was unable to be present.

Apologies for absence had been received from Messrs. E. G. Johnson and J. H. Gillespie.

Messrs. H. W. DAWES, J. A. HODGMAN and G. HOWE were unanimously elected members of the Association.

ANNUAL REPORT, 1913.

In connection with the formation of the Association, thirty-two members of the profession at first agreed to become original members, but, later, three of the gentlemen withdrew, two owing to their having left the district, and one through inability to attend the meetings owing to the day of the week fixed upon clashing with a previous permanent weekly engagement.

Two additional members were elected, making a total for the year 1913 of thirty-one.

Twenty-five members paid their entry fee and first subscription during the year, leaving six in arrear. Three of the latter have since paid.

Three other gentlemen have been nominated, and will come up for election at the first meeting in 1914.

SYLLABUS FOR 1914.

JANUARY MEETING. Address by the President. Paper on "Colic—Its treatment," by W. Brown, M.R.C.V.S., Worksop.

APRIL MEETING. Paper on "Veterinary Inspection in relation to Public Health," by J. W. Brittlebank, M.R.C.V.S., D.V.S.M., Health Department, Manchester.

JULY MEETING. Demonstration on "The Lymphatic System in the Ox and Pig," by J. S. Lloyd, F.R.C.V.S., D.V.S.M., Chief Veterinary Inspector. Town Hall, Sheffield. An exhibition of humane slaughtering of animals will probably also be arranged.

OCTOBER MEETING. A paper entitled "Some remarks concerning Entozoa of the Horse, by A. W. Noël Pillers, F.R.C.V.S., Veterinary Department, Municipal Buildings, Liverpool.

The HON. TREASURER reported on the balance sheet for the year 1913, the balance in the bank being £19 2s. 8d.

Mr. FLETCHER proposed, and Mr. Furness seconded, that the balance sheet up to Dec. 31st, 1913, as presented by the Hon. Treasurer, be accepted.

Milk Sterilisation by Electricity.

For the past two years experiments have been carried on in the University of Liverpool by Professors J. M. Beattie and F. C. Lewis with a view to utilising electricity in the sterilisation of milk. The results of these researches have now been published.

One hundred and twenty experiments on a continuous stream of milk were made, and the invariable result was complete destruction of all colon and allied bacilli, and an enormous reduction in the total number of bacteria of all kinds. To the comparatively insignificant number of organisms left alive the experimenters attached no importance, and even those could have been destroyed by further treatment. Incubation experiments on large samples confirmed the Agar-plate indications, and chemical analyses by the Liverpool City Analyst proved the milk to be unaltered in constitution. The acidity of the sterilised milk remained practically constant for twenty-four hours after treatment, whereas the acidity of untreated samples rapidly rose. The taste of the milk was not altered, the fresh "bouquet" being as perfectly discernible after as before treatment, and expert dairymen could not detect the difference. Several experiments were made with milk naturally and artificially infected with tubercle bacilli, and in no case did the animals inoculated with the treated tubercular milk show the slightest sign of tubericulosis upon post-mortem examination six weeks after noculation.

No details are published of the technique of the process, nor of its cost. The only information of this kind given is that a high tension electrical current is used, and that the milk is exposed to the treatment for but a very short time. The experimenters say, in summing up their report, that the new system of sterilisation shows that not only can the ordinary milk-souring bacteria and bacteria of similar type, including in many cases spores also, be killed, but that, in addition, evidence has been adduced that both natural and artificial contamination with tubercle bacilli can be rendered harmless.—*The Hospital.*

Amendment of the Tuberculosis Order.

Lord Crewe, as President of the Cheshire Milk Producers' Association, occupied the chair on Monday last at an agricultural conference at Crewe. Mr. Walter Runciman, President of the Board of Agriculture, was present, and in the course of a speech said: With regard to the Tuberculosis Order, he had observed during the last eight or nine months that local authorities had practically never availed themselves of Section 20 of the Act of 1894, which allowed the local authority to sell the animals, and if the amount of money raised in salvage in that way exceeded the amount which had been allocated for compensation they would pay to the original owner the whole salvage money and not limit payment to the compensation.

Experience of the working of the order had shown that the two valuations provided did not work well, and they would have to get rid of what had been a cause of loss to a good many cow owners in England and Wales. Mr. Runciman indicated that delay in inspection and valuation would also be dealt with in an amending order, and hinted that provision might be made for a cow to be killed after 72 hours and compensation paid. In conclusion, he said the Treasury were prepared to allocate £60,000 per annum for compensation and a vote was taken for £40,000, but they had spent only £5,000, and now they must ask that the wording of the Order should be relaxed in order to come a little nearer to the Treasury anticipations of the cost.

Speaking at a dinner in the evening, Mr. Runciman referred to the healthy state of the flocks and herds in this country, and said he had been considering a scheme which he hoped to put before the Development Commission for strengthening the veterinary profession. It was absolutely necessary that greater assistance should be given from national funds to the education of veterinary surgeons, and he wished to see a profession in England on which we could rely for doing that research work in regard to animals which distinguished scientists had been doing for human beings. If those responsible for our national finance could realise how the stamping out of a single disease could add millions to our national wealth they would be more generous in the grants they gave for the conduct of the most valuable branch of the agricultural staff.

The Oldest Veterinary Surgeon in England.

In several northern papers during the past week a photograph of Mr. Henry Pulman, a registered "Existing Practitioner," of Nelson, Lancs., has been published under the above heading, accompanied by the statement that he "has received intimation from the Secretary of the Royal College of Veterinary Surgeons that he is the oldest Registered Veterinary Surgeon in the country."

On inquiry at the offices of the Royal College of Veterinary Surgeons, we learn that the statement is incorrect in two particulars: (1) That no such intimation has been sent from the College, and (2) that Mr. Henry Pulman is not the oldest Registered Veterinary Surgeon.

DISEASES OF ANIMALS ACTS 1894 TO 1911, SUMMARY OF RETURNS.

Period.	Anthrax.		Foot-and-Mouth Disease.		Glanders.†		Parasitic Mange.		Sheep Scab.	Swine Fever.	
	Out-breaks (a)	Animals.	Out-breaks (a)	Animals.	Out-breaks (b)	Animals.	Out-breaks (b)	Animals.	(b)	Out-breaks (a)	Slaughtered. *
GT. BRITAIN. Week ended Jan. 24	15	16			1	2	101	190	25	44	344
Corresponding week in 1913 ...	12	13			2	8	91	227	7	39	382
Corresponding week in 1912 ...	26	27			1	3	139	353	13	62	780
Corresponding week in 1911 ...	28	36			5	13			28	32	285
Total for 4 weeks, 1914	77	81			7	24	332	648	58	180	1504
Corresponding period in 1913 ...	50	61			13	59	347	837	45	146	2002
Corresponding period in 1912 ...	92	102			12	31	648	1791	63	229	2540
Corresponding period in 1911 ...	85	96			18	63			123	141	1523

(a) Confirmed. (b) Reported by Local Authorities. † Counties affected, animals attacked: London 2.

Board of Agriculture and Fisheries, Jan. 27, 1914

IRELAND. Week ended Jan. 24	...	...	...	...	...	...	Outbreaks 10	45	4	44
Corresponding Week in 1913 ...	...	...	...	...	...	...	3	32	6	14
Corresponding Week in 1912 ...	...	...	...	...	...	...	4	24	4	11
Corresponding Week in 1911 ...	...	...	...	...	...	...	1	27	5	48
Total for 4 weeks, 1914 ...	...	...	...	...	...	...	14	85	10	74
Corresponding period in 1913 ...	...	...	...	...	...	...	37	77	24	99
Corresponding period in 1912 ...	1	1	...	...	...	...	8	86	11	146
Corresponding period in 1911 ...	1	1	...	...	...	...	8	96	17	281

Department of Agriculture and Technical Instruction for Ireland, (Veterinary Branch), Dublin, Jan. 27, 1914

NOTE.—The figures for the Current Year are approximate only. * As Diseased or Exposed to Infection

Successful Pony Breeding.

In *The Shetland Pony** a very interesting portion is that devoted to the Modern Pony, recounting the work in fixing a type accomplished by Lord Londonderry, with the help of Mr. Robert Brydon and the late Mr. Meiklejohn on the island of Bressay. By selection and inbreeding, the result, as the authors phrase it, was "a breed improvement without a parallel as the result of thirty years' breeding and management." The remarkable thing about this improvement was not only that it was due to one stud, but mainly to a single animal in it, viz., to old Jack (16), the sire or grandsire of almost all the stallions used. Apart from his predominance in the stud, the winnings of the Jack strain constitute a unique record in the showyard. At the last twelve shows of the Highland and Agricultural Society, since the stud was broken up in 1899, out of 116 first and second prizes awarded, no fewer than 114 were gained by the progeny of sires actually in use in the Londonderry stud—a remarkable demonstration, as the authors put it, of the influence of a single stud and a single horse upon the breed. The section on Management gives an amount of valuable information on the system to follow in order to obtain the best results, and lays emphasis on the necessity of breeders having a clear ideal in view, and an "aim independent of the changes of fashion and the varying fortunes of the showyard." The small size was fixed and exaggerated some years prior to 1845, by the crofters exporting their stoutest stallions, while, curiously enough, the scarcity of really good stallions is the chief impediment to-day to the improvement of the Shetland pony in his native home.—*North British Agriculturist.*

*By Charles and Anne Douglas. Wm. Blackwood & Sons, Edinburgh and London. 10s. 6d.

Hunting Memorial Fund.

Subscriptions received up to 7 p.m., Jan. 28th, 1914

	£	s.	d.
Amount previously acknowledged	172	5	6
Mr. W. Kennedy, Nairobi, British E. Africa	1	1	0
Hugh Begg (F), Hamilton, Lanark	1	1	0
Capt. Wm. A. Jelbart, A.V.C., Maymyo, Burma	1	0	0
Mr. Stafford Jackson, Liverpool	1	1	0
R. L. Phillips (F), Loughborough	1	1	0
A. Inglis MacCallum, J.P., Edinburgh	1	1	0
S. H. Nye (F), Bow Road, E.	1	1	0
Messrs. T. A. Reed & Co. Chancery Lane, (Official typists, etc. to R.C.V.S.)	1	1	0
Mr. A. Cornish-Bowden, Beckenham	1	1	0
Maj. A. J. Williams, A.V.C., Station Vety. Hospital, Trimulghery, India	1	1	0
Capt. W. E. Schofield, The Club, Peshawar	1	1	0
Capt. E. C. Russell, A.V.C., Quetta Club, India	1	1	0
Col. E. H. Hazelton, Simla, India.	1	1	0
Capt Greenfield, A.V.C., Hong Kong, China		10	0
Dr. G. E. Cartwright-Wood, Belmont Laboratories, Sutton	5	5	0
Mr. W. E. Ison (F), Atherstone	1	1	0
W. R. Davis, The Poplars, Enfield	1	1	0
W. H. Bloye (F), Ebrington St., Plymouth	2	2	0
	£195	16	6

HENRY GRAY, Hon. Sec. & Treas.

23 Upper Phillimore Place, London, W.

Cheques endorsed "Hunting Memorial Fund" and crossed "The London, City and Midland Bank, Ltd.

ARMY VETERINARY SERVICE.

Extract from *London Gazette.*

WAR OFFICE, WHITEHALL, Jan. 23.

REGULAR FORCES. ARMY VETERINARY CORPS.

Lieut. A. B. Bowhay to be Capt. Dated Oct. 20, 1913.

Jan. 27.

SPECIAL RESERVE OF OFFICERS. ARMY VETERINARY CORPS.

Lieut. (on probation) M. R. Lawson is confirmed in his rank.

Maj. A. G. Todd, Commandant of the Army Veterinary School, Aldershot, is to be appointed Assistant Director-General of the Army Veterinary Service.

OBITUARY

T. GIFFORD PALGRAVE, M.R.C.V.S.

Graduated, Glas: Dec., 1897.

Mr. Palgrave's death is reported from Auckland, New Zealand, on 8th December, 1913.

SIMPSON.—At Fulbrooke, Ruthin, North Wales, on Jan. 15th, Jessie Ellen, wife of T. J. Simpson, M.R.C.V.S., and daughter of Ex-Councillor Thomas Tait, of Edinburgh.

Personal.

PETTY—STEVENS.—On January 20th, at King's Road Baptist Church, Reading, by the Rev. Gordon Fairbairn, William Edward Petty, M.R.C.V.S., of Southsea, son of Benj. Petty, of Leeds and Reading, to Ellen Mary, youngest daughter of the late C. R. Stevens, of Reading, and Mrs. Stevens.

Owing to additional duties imposed in connection with the examination of cattle under the Tuberculosis Order of 1913, and the general inspection of all cattle in the City of Liverpool, the City Council have increased the salary of the Veterinary Superintendent, Mr. T. Eaton-Jones, F.R.C.V.S., from £600 to £700 with house, etc., as before. An amendment to refer the recommendation back was rejected, and the increase voted almost unanimously, more than one member testifying to the onerous and efficient work which Mr. Jones had carried out.

Mr. ALEX. DOUGLAS, M.R.C.V.S., D.V.S.M., Kilmarnock, has been appointed Veterinary Officer to the Ayr County Council. This is a new appointment, and has been rendered necessary by the increased amount of work under the Diseases of Animals Acts. There were twenty applications for the post. The salary is £300 per annum.

As a result of the accident which befell Mr. R. N. Lewis, M.R.C.V.S., Veterinary Officer to the Dumfries County Council, on August 27th, when his motor cycle collided with a motor car, his right leg has been amputated above the knee at a nursing home in Newcastle. He is now making satisfactory progress.—*Ayrshire Times.*

Mr. ARTHUR LLOYD, M.R.C.V.S., has been appointed by the City of London Corporation as an additional meat inspector at the Metropolitan Cattle Market at a salary of £150 per annum, rising to £200.

The annual retaining fee of Mr. Harry Peele, Chief Veterinary Officer under the Durham County Council has been increased from £20 to £50.

AN "INSURANCE" QUESTION.

Sir,

I should be glad of some information through your columns as to our legal liability in the case of a *locum tenens* should any such have the misfortune to meet with an accident whilst acting for us.—Yours faithfully,

Bideford, Jan. 17. WM. ASCOTT.

Veterinary Societies—Addresses.

BORDER COUNTIES V.M.S.
Pres: Mr. J. W. Hewson, M.R.C.V.S., Wigton
Hon. Sec. (pro tem.): Mr. F. W. Garnett, M.R.C.V.S., Dalegarth, Windermere
Meetings, Second Friday of Feb., June, and October

GLASGOW V.M.S.
Pres. Principal McCall.
Hon. Sec. Mr. J. Gibson, 16 Overdale Gdns, Langside, Glas.

ROYAL VETERINARY COLLEGE V.M.A.
Pres: Prof. E. Brayley Reynolds.
Hon. Sec: Mr. B. Gorton, M.R.C.V.S. *Assist.* Mr. E. E. Jelbart

ASSOCIATION OF VETERINARY OFFICERS OF HEALTH
Pres: Mr. T. Douglas, M.R.C.V.S., Kilmarnock
Hon. Sec. & Treas. Mr. A. M. Trotter, M.R.C.V.S., Moore Street, Abattoir, Glasgow

NATIONAL ASSOCIATION OF VETERINARY INSPECTORS
Pres: Mr. J. Abson, F.R.C.V.S., Sheffield
Hon. Sec: Mr. Trevor Spencer, M.R.C.V.S., Kettering

MUNSTER VETERINARY INSPECTORS' ASSOCIATION
Pres: Mr. D. M. Barry, M.R.C.V.S., Mallow
Hon. Sec: Mr. T. I. Alexander, M.R.C.V.S., Kinsall

NATIONAL VETERINARY BENEVOLENT & MUTUAL DEFENCE SOCIETY.
Pres: Mr. W. A. Taylor, F.R.C.V.S., Brick-st, Manchester
Hon. Sec: Mr. G. H. Locke, M.R.C.V.S. Grosvenor Street, Oxford-st., Manchester
Treas: Mr. J. B. Wolstenholme, F.R.C.V.S., Quay-street, Manchester

VICTORIA VETERINARY BENEVOLENT FUND.
Pres. Mr. R. C. Trigger, J.P., Newcastle, Staffs.
Hon. Sec. & Treas: Mr. W. Shipley, F.R.C.V.S. South Town, Great Yarmouth

COLONIAL SOCIETIES (*continued next page*)

VETERINARY ASSOCIATION OF NEW SOUTH WALES
Pres: Mr. S. T. D. Symons. M.R.C.V.S., Chief Inspr. of Stock
V. Pres: Maj. A. P. Gribben, F.V.O., M.R.C.V.S.
Hon. Sec. & Treas: Mr. Max. Henry, M.R.C.V.S., B.V.SC. (SYD). 56 Bridge Street, Sydney.

BRITISH COLUMBIA V.M.A.
Pres: Dr. Gibbons, M.R.C.V.S., Vancouver,
Hon. Pres: Dr. Hamilton, M.R.C.V.S., Victoria.
Sec., Treas., Registrar. Dr. T. Jagger, V.S., Vancouver.

ASSOCIATION MÉDÉCALE VÉTÉRINAIRE FRANÇAISE "LAVAL"
Sec: Mr. J. P. A. Haude, Montreal

PROVINCE OF QUEBEC V.M.A.
Hon. Sec. Mr. Gustave Boyer, Rigaud, P. 2

VETERINARY ASSOCIATION OF ALBERTA
Hon. Sec. Mr. C. H. H. Sweetapple, For Saskatchewan, Alta, Can.

ONTARIO V.A.
Pres: Mr. J. H. Tennent, V.S., London, Ontario
Sec: & Treas: Mr. L. A. Wilson, Toronto, Ontario

TRANSVAAL V.M.A.
Pres: Mr. C. E. Gray, F.V.S., Box 134, Pretoria.
Hon. Sec: Mr. P. Conacher, O.V.S., Box 877, Johannesburg

NATIONAL VETERINARY ASSOCIATION

Past President: Mr. W. Woods, F.R.C.V.S., Wigan
See:
Assist. See: Mr. W. L. Harrison, F.R.C.V.S.,
11 Anchor Terrace, Southwark Bridge, S.E.
Treas: Prof. G. H. Wooldridge, F.R.C.V.S.,
Ryl. Vet. Coll., Camden Town N.W.

Northern Branch:

Pres, W. A. Taylor, (F) Brick Street, Manchester
Hon. Sec. A. W. Noël Pillers, (F)
74 Smithdown Lane, Liverpool

LANCASHIRE V.M.A.

Pres: Mr. G. H. Locke, M.R.C.V.S.,
Grosvenor-street, Manchester
Hon. Sec. Mr. J. W. Brittlebank, M.R.C.V.S.,
Town Hall, Manchester
Hon. Treas: Mr. E. H. Stent, M.R.C.V.S., Preston-st, Hulme
Meetings, 1st Thursday in April, June, Sept., & Dec.

LIVERPOOL UNIVERSITY V.M.S.

Pres: Mr. J. P. Heyes, F.R.C.V.S., Wigan
Hon. Sec: A. Walker, M.R.C.V.S., Mill Lane, West Derby
Pathological Sec: Mr. D. C. Matheson, F.R.C.V.S.
Meetings, May, July, October, January.

MIDLAND COUNTIES V.M.A.

Pres: Mr. J. Martin, M.R.C.V.S., Wellington, Salop
Hon. Sec: Mr. H. J. Dawes, F.R.C.V.S.,
Camden House, High-st., West Bromwich
Meetings, Second Tuesday, Wednesday, Thursday, and Friday alternately in Feb., May, Aug. and Nov.

NORTH OF ENGLAND V.M.A.

Pres:
Hon. Sec: T. T. Jack, M.R.C.V.S., 3 Elmwood Ter, Sunderland
Meetings, Third Friday, Feb., May, Aug. and Nov.

NORTH MIDLAND VETERINARY ASSOCIATION

Pres: Mr. F. L. Somerset, M.R.C.V.S., Chesterfield
Hon. Sec: Mr. J. S. Lloyd, F.R.C.V.S., Sheffield

NORTH WALES V.M.A.

Pres: Mr. Hugh Williams, M.R.C.V.S., Ty Croes
Hon. Sec. Mr. L. W. Wynn Lloyd, M.R.C.V.S., Carnarvon
Meetings, First Tuesday, March and September

SOUTH DURHAM AND NORTH YORKSHIRE V.M.A.

Pres: Mr. J. M. Walker, F.R.C.V.S., Hartlepool
Hon. Sec. & Treas: Mr. J. H. Taylor, F.R.C.V.S.
Grange Road, Darlington
Meetings, First Friday, Mar., June, Sept. and Dec.

YORKSHIRE VET. ASSOCIATION

Pres: Mr. J. Abson, F.R.C.V.S., Norfolk Street, Sheffield
Hon. Sec: Mr. J. Clarkson, M.R.C.V.S., Garforth, nr. Leeds
Hon. Treas: Mr. A. McCarmick, M.R.C.V.S.,
Kirkstall-road, Leeds

Southern Branch:

Pres. Sir Stewart Stockman, 4 Whitehall Place, S.W.
Sec. T. C. Toope, 34 High Street, Dover

CENTRAL V.S.

Pres. Prof. G. H. Wooldridge, R.V.Coll., Camden Town.
Hon. Sec: Mr. H. A. MacCormack, M.R.C.V.S.,
122 St. George's Avenue, Tufnell Park, N.
Meetings, First Thursday in each month, except August and September, 10 Red Lion Square, Holborn, at 7 p.m.

EASTERN COUNTIES V.M.A.

Pres. Mr. F. B. O. Taylor, M.R.C.V.S., Weston Longueville,
Hon. Sec. & Treas: Mr. Sidney Smith, Junr., M.R.C.V.S.
37 High Street, Lowestoft
Meetings, Second Tuesday, Feb., July and Sept.

LINCOLNSHIRE AND DISTRICT V.M.S.

Pres. Mr. C. W. Townsend, F.R.C.V.S.,
Long Stanton, Cambridge
Hon. Sec: & Treas: Mr. Tom Hicks, M.R.C.V.S.,
Boston Road, Sleaford
Meetings, Second Thursday Feb., June, and October

ROYAL COUNTIES V.M.A.

Pres: Mr. J. C. Coleman, M.R.C.V.S., Swindon
Hon. Sec. & Treas: Mr. G. P. Male, M.R.C.V.S., Reading
Meetings, Last Friday, Jan., April, July and Nov.

SOUTHERN COUNTIES V.S.

Pres: Mr. G. H. Livesey, M.R.C.V.S., Hove, Sussex
Hon. Sec: Mr. A. H. Archer, M.R.C.V.S., Southsea, Portsmouth
Hon. Treas: Mr. E. W. Baker, M.R.C.V.S., Wimborne
Meetings, Last Thursday, Mar., June and Sept.

SOUTH EASTERN V.A.

Pres. Mr. E. Lyne Dixson, M.R.C.V.S., Margate
Hon. Sec. & Treas. Mr. Theo. C. Toope, M.R.C.V.S.,
34 High Street, Dover
Meeting,

WESTERN COUNTIES V.M.A.

Pres: Mr. C. E. Perry, F.R.C.V.S., Staple Hill, Bristol.
Hon. Sec. Mr. W. Ascott, M.R.C.V.S., Bideford
Hon. Treas: Mr. P. G. Bond, M.R.C.V.S., Plymouth
Meetings, Third Thursday, March, July and November

Irish Branch:

Pres. Mr. W. Watson, Municipal Buildings, Dublin
Sec. Mr. P. D. Reavy, Leafield, Bundoran, Co. Donegal

CENTRAL V.A. OF IRELAND.

Pres: Mr. B. P. J. Mahony, M.R.C.V.S., Maryborough
Hon. Sec. Mr. E. C. Winter, F.R.C.V.S., Queen-st., Limerick
Treas: Mr. J. F. Healy, M.R.C.V.S., Midleton

CONNAUGHT V.M.A

Pres. Mr. D. Hamilton, M.R.C.V.S., Ballina
Hon. Sec. & Treas. Mr. A. J. Moffett, M.R.C.V.S., Galway

VET. MED. ASSN. OF IRELAND.

Pres: Mr. P. J. Howard, M.R.C.V.S., Ennis
Hon. Sec: J. J. O'Connor, M.R.C.V.S., R.V. Coll., Dublin
Hon. Treas: Prof. J. F. Craig, M.A., M.R.C.V.S.,
R.V. Coll., Dublin

NORTH OF IRELAND V.M.A.

Pres: Mr. J. A. Jordan, M.R.C.V.S., Belfast
Hon. Sec; Mr. J. Ewing Johnston, M.R.C.V.S., Belfast
Hon. Treas;

Scottish Branch:

Pres. Dr. O. Charnock Bradley, } Ryl. (Dick) Vet.
Hon. Sec. Prof. A. Gofton, } Coll: Edinburgh

NORTH OF SCOTLAND V.M.S.

Pres: Mr. W. Marshall, M.R.C.V.S., Aberdeen
Hon. Sec. & Treas: Mr. G. Howie, M.R.C.V.S. Alford, Aberdeen
Meetings, Last Saturday in January and August

ROYAL SCOTTISH V.S.

Pres: Mr. Reid, M.R.C.V.S., Auchtermuchty.

SCOTTISH METROPOLITAN V.M.S.

Pres: Mr. J. Riddoch, M.R.C.V.S., Edinburgh
Hon. Sec. & Treas: Mr. Jas. Henderson, M.R.C.V.S.,
Public Health Dept., City Chambers, Edinburgh

WEST OF SCOTLAND V.M.A.

Pres: Prof. John R. McCall, M.R.C.V.S., Vety. Coll. Glasgow
Hon. Sec: Mr. J. F. Macintyre, M.R.C.V.S.,
19 Bank Street, Hillhead, Glasgow
Hon. Treas: Mr. Geo. W. Weir, M.R.C.V.S.,
88 Crookston Street, Glasgow
Meetings, Second Wednesday, May, Oct. and January.

COLONIAL SOCIETIES: *(see preceding page)*

CAPE OF GOOD HOPE V.M.S.

Pres. Mr. J. D. Borthwick, M.R.C.V.S., Cape Town
Hon. Sec. & Treas. Mr. R. W. Paine, F.R.C.V.S.

CENTRAL CANADA V.A.

Hon. Sec: Mr. A. E. James, Ottawa

VET. ASSN. OF MANITOBA.

Pres: Dr. W. R. Taylor, Portage la Prairie
Hon. Sec. & Treas: Mr. Wm. Hilton, Winnipeg

NATAL VETERINARY MEDICAL ASSOCIATION.

Pres. Mr. F. J. Carless, M.R.C.V.S., Mooi River
Hon. Sec. & Treas. Mr. A. W. Shilston,
Vety. Research Laboratory, Pietermaritzburg

MEMBERS OF THE NORTH OF SCOTLAND VETERINARY MEDICAL SOCIETY,
Aberdeen, 31 January, 1914.